

Appl. No. 09/976,668
Response to Office Action.... filed February 25, 2004

REMARKS

Consideration of this Response is respectfully requested. The foregoing listing of claims is provided as a convenience to the Examiner; the claims stand as previously presented.

It should be noted that the format used in the listing of claims complies with 37 C.F.R. §1.173 ("reissue specification, drawings and amendments") - the amendment practice specified in 37 C.F.R. § 1.121 does not apply in reissue applications (37 C.F.R. § 1.121(a)).

STATUS OF CLAIMS (37 C.F.R. § 1.173(c))

Claims 1-39 are pending in this reissue application. Patent claims 1-23 are pending in this application, stand allowed, and have been maintained unchanged. New claims 24-39 were presented in the Amendment entered with the Request for Continued Examination filed on August 5, 2003.

Claim 39 was objected to only as being dependent upon a rejected base claim, and the Examiner is thanked for the indicated allowability of this claim. In view of the following remarks, which establish the patentability of claim 24, from which claim 39 depends, claim 39 has been maintained unchanged.

Claims 24-38 have been rejected.

Claims 1 (allowed), 4 (allowed), 15 (allowed), 17 (allowed), 20 (allowed), 21 (allowed), 24, 38, 32 and 36-38 are independent.

EXPLANATION OF SUPPORT IN THE DISCLOSURE FOR NEW CLAIMS 24-39 (37 C.F.R. § 1.173(c))

Since the claims have not been changed from the previous version of those claims in the Amendment entered with the Request for Continued Examination filed on August

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5, 2003, a detailed Explanation of Support is not believed to be necessary. Instead, reference is made to the prior Explanation of Support in the Disclosure for New Claims 24-39. which is incorporated by reference herein..

The Rejection
Under 35 U.S.C. § 103

Claims 24-38 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Laid-Open Patent Appln. No. 4-7185 to Ishii et al. in view of U.S. Patent No. 5,136,308 to Saito et al. Applicants respectfully traverse this rejection, and submit the following arguments in response thereto.

To establish the correctness of the arguments presented below, Applicants submit herewith the Declaration Under 37 C.F.R. § 1.132 of Mr. Kazuo Saito. It will be appreciated that this Declaration constitutes evidence supporting Applicants' patentability arguments.

As described in claim 24, the present invention is drawn to an ink jet printer for use with an ink jet head having a nose portion through which ink is ejected. This printer has a paper feeding path which guides a sheet of printing paper in a direction from a paper feeding side to a paper discharging side, a paper feed roller having a peripheral surface coincident with a portion of the paper feeding path, a driving device operatively coupled to the paper feed roller and selectively rotating the paper feed roller, a presser abutting the paper feed roller at a contact position, the contact position being located on the paper feeding path so that when the paper feed roller is rotated by the driving device the sheet of printing paper is moved along the paper feeding path, and a flat paper guide surface disposed in the paper feeding path downstream of the contact position. Other features of the invention include a printing area located between the flat paper guide surface and the ink jet head and corresponding to a region over which ink can

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be applied by ejection by the ink jet head and a plurality of projections disposed on the paper guide surface, at least some of which projections are at least in part disposed inside of the printing area which is located between the contact position where the presser abuts the feed roller and a position where the nose portion of the ink jet head opposes the paper guide surface across the paper feeding path when the ink jet head ejects ink, the projections being arranged at intervals in a direction approximately transverse to and beneath the printing paper for supporting the sheet of paper moving along the paper feeding path. The paper feeding path, at least from the contact position of the presser to the printing area, is substantially flat.

For conciseness, Applicants will not summarize in specific detail the invention as described in each of the other five rejected independent claims, claims 28, 32 and 36-38. However, it should be noted that each these other claims, in the same manner as claim 24, already described, specifically provides for projections located beneath the paper path and also that the paper path, in the region between the contact position of the presser and the printing, is flat.

Applicants would be glad, of course, to present that summary in a supplemental Response should the Examiner so request.

Keeping the claimed invention in mind, Applicants respectfully traverse this rejection of claims 24-38 on grounds one skilled in the art would not be led to combine the two cited references in the manner suggested by the Examiner and, even if those references were so combined, that combination still would not lead to the claimed invention.

As explained in the accompanying Declaration, Mr. Saito agrees with Applicants' conclusion that the rejection of claims 24-38 under 35 U.S.C. § 103 over based upon Ishii in view of Saito is improper because those references cannot be applied together.

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Mr. Saito states that a person skilled in the art would not have combined Ishii and Saito in a way that would suggest the present invention because the teachings of Ishii and Saito lead away from such a combination.

In Ishii's structure the print head does NOT press against the surface of the recording medium. Rather, front edge 17 of the paper pressing plate 15 presses against the recording medium. As the paper pressing plate 15 moves integrally with a movable lever, the gap between the print head and the printing medium is kept constant even if the thickness of the printing medium varies. Ishii's goal, therefore, is to provide a recording apparatus which maintains a fixed gap distance between the recording head and the recording medium.

Ishii teaches that the front edge 17 of the paper pressing plate 15 is continuously flat, as Mr. Saito notes. As platen 5 itself might not be continuously flat over the entire widthwise direction of the printer, in manner of the front edge 17, it is theoretically possible that Ishii's platen 5 could be replaced with a platen with ribs like that taught in the Saito reference and the printer would still work. However, such a combination would not be apparent to those skilled in the art, even though the combination is theoretically possible.

The justification for this combination proposed in the Office Action (last paragraph of page 3) is that the reference could be combined to use the Saito ribbed platen in Ishii's printer to prevent ink scattering and contamination of the recording medium. This position is not persuasive, however, because it is contrary to the plain teachings of the references, as explained in Mr. Saito's Declaration.

As shown in Fig. 1, Ishii has a paper path constructed such that the paper moving upward comes into engagement with the front edge 17 of the paper pressing plate 15 so that the feeding path of the paper is controlled. In this printer the paper moves generally

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upward while the direction is controlled by the plate edge 17, and so the paper does not contact the underlying platen 5. Mr. Saito has explained that the paper emerges between rollers 1 and 4 at an upward angle and strikes the plate edge 17 of the plate and does not rest on the lower platen 5.

Because of this printer construction, the recording medium extending upward would not touch Ishii's platen 5, and so could not be contaminated by any ink that might be on the platen. This means the alleged problem of avoiding contamination of the recording medium with ink on the platen beneath, which the Office Action said justifies the combination of Ishii and Saito, is not present in the Ishii printer. So there is no basis for asserting one skilled in the art would combine Ishii and Saito. It is noted that Mr. Saito reaches this conclusion.

Nor would one skilled in the art think to combine Ishii and Saito to prevent cockling, for the reasons which follow.

A person of ordinary skill in the art wishing to solve the problem of paper cockling would not look to Ishii because Ishii only is concerned with adjusting and keeping constant the gap between the print head and the paper when the thickness of the paper varies. As Mr. Saito points out, solving the gap problem involves just the mechanical design of the structure that holds the head, does not bear upon cockling, and is unrelated to the type of ink used or the manner in which ink droplets are ejected.

In contrast, the phenomenon of cockling is caused by the ink which is absorbed in the recording medium. Applicants submit that, as noted in Mr. Saito's Declaration, at the time the present invention was made, the cockling phenomenon was not well known to persons

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of ordinary skill in the art. Consequently, those of such ordinary skill would not have been aware of the cockling problem, and so could not have been searching for a solution to it.

Given the level of skill in the art at the time of invention, Applicants submit that there is no teaching in Ishii that would lead one of such skill to recognize the problem that is solved by the present invention. Nor would Ishii lead to a solution to that problem, much less to the solution provided by the present invention. Accordingly, Ishii does not even suggest the subject matter of the present invention.

Nor does Saito suggest the cockling problem solved by this invention.

Accordingly, and contrary to the assertion in the Office Action, neither Ishii nor Saito recognize the cockling problem, meaning one skilled in the art would find no reason to combine those references to solve that problem. Consequently, Applicants submit there is no motivation to combine Ishii with the other prior art even if cockling inherently arises.

Even if Ishii and Saito are combined (and, as noted above, that point is traversed), and a ribbed platen like that taught in Saito were substituted for Ishii's platen 5, the resulting printer mechanism still would not avoid the cockling problem.

Mr. Saito has explained that, as shown in Fig. 1 of Ishii, the paper feed roller rotates clockwise and the paper, which is fed by the feed roller 1 and the paper pressing roller 4, moves upward (at a tangent to roller 1). This paper, moving upward, engages the front edge 17 of the paper pressing plate 15 so that the feeding path of the paper is controlled. In this structure the paper moves upward while its direction is controlled by the plate edge 17, and because of the position of the plate edge 17 the paper (which moves upward) does not contact the underlying platen 5. Consequently, the paper emerges from between rollers 1 and 4 at an upward angle and the paper then strikes the plate edge 17 of the plate.

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Because of this arrangement, even if Ishii's platen 5 had ribs or projections as is taught by Saito, the Ishii printer does not have any structure that applies a downward force for pressing the paper against the ribs on the platen 5. As a result, there is no contact between the paper and the ribs, meaning the ribs would not act to control cockling of the paper. This is supported in Mr. Saito's Declaration.

For these reasons as well Saito's ribs 12a, shown in Fig. 31A, would not prevent the cockling problem. This is because, as shown in Figs. 13 and 27, the curving paper 11 fed to the printing section is urged toward the printhead, not the platen 12. Therefore, in the depicted structure, the paper would not be urged against the ribs 12a of the platen 12, and so Saito's ribs do not serve to suppress cockling.

For all these reasons, and in view of the submitted evidentiary Declaration, one skilled in the art would not combine Ishii and Saito. In contrast, in the present invention, paper fed by the feed roller contacts the tip end of the plate so that the paper is directed toward the paper guides or projections formed on the platen and comes into abutment against the same. Thus, the suggestion in the Office Action to combine Ishii and Saito by modifying Ishii's printer to use the ribbed platen taught by Saito is in error, and so the references would not be combined by one skilled in the art. The rejection under 35 U.S.C. § 103 therefore is not well-founded and should be withdrawn.

For all the foregoing reasons, favorable reconsideration and withdrawal of this rejection are respectfully requested.

Applicants also wish to address the statement in the Office Action at section 6, page 4, "as pointed out in the Final Rejection, the Applicant indicated that it is known in the art to prevent such sagging by the use of a suitable discharge roller" (see Applicant's response,

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filed 11/14/02, p.5: para.2)". In fact, Applicant's response stated "neither of these references teach a structure that would prevent such sagging, say, by using a suitable discharge roller". This speaks in terms of knowledge at the **present time**, and is not an admission by Applicant that at the time this application was filed such structure was known.

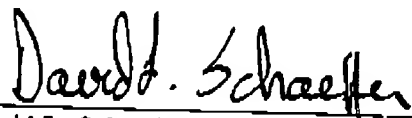
With regard to the invitation in the Office Action to "claim whatever means is being used to prevent such paper sag", Applicants respectfully decline. It is not felt necessary to make this claim change, since the present invention is intended to reduce paper staining, and is not directed to the issue of paper sag.

CONCLUSION

It is respectfully submitted that in view of the foregoing remarks, all of the outstanding rejections in this application have been overcome.

Favorable consideration and prompt allowance of this application is respectfully requested. In the event that there are any questions, or should additional information be required, please do not hesitate to contact applicant's attorney at the number listed below.

Respectfully submitted,



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